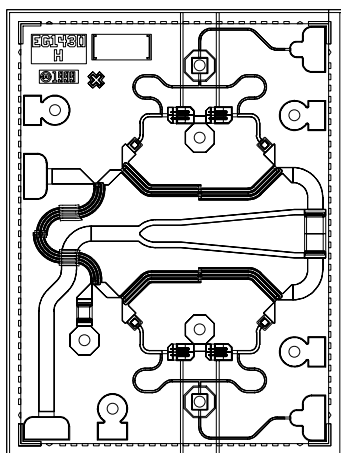


## 20 - 40 GHz IQ Mixer

## TGC1430H



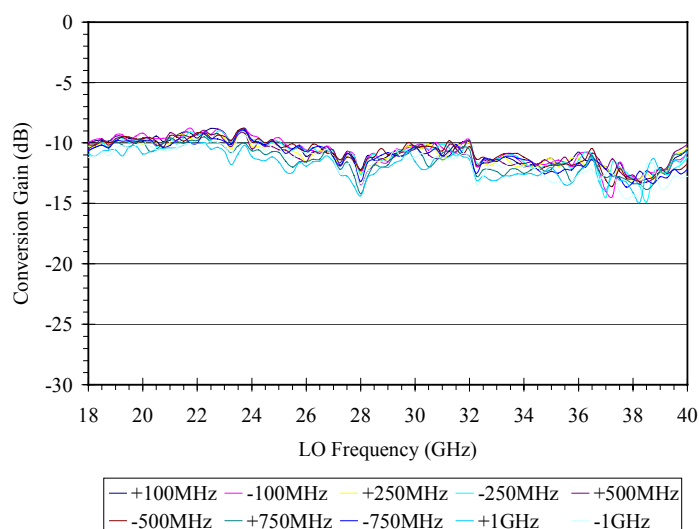
Chip Dimensions 1.50 mm x 2.0 mm

### Key Features and Performance

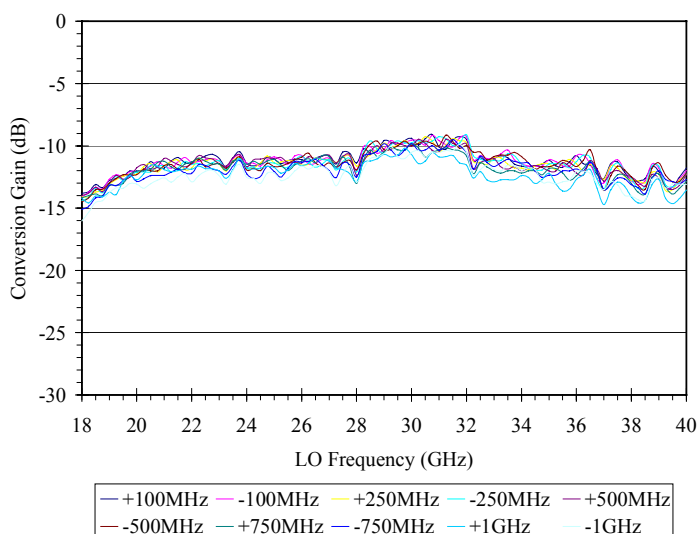
- 0.25um pHEMT Technology
- 20 - 40 GHz RF/LO Frequencies
- DC - 1GHz IF
- -11 +/- 1dB Conversion Gain
- 15 dBm Input Drive

### Primary Applications

- Point-to-Point Radio
- Point-to-Multipoint Communications
- Image Reject Mixers

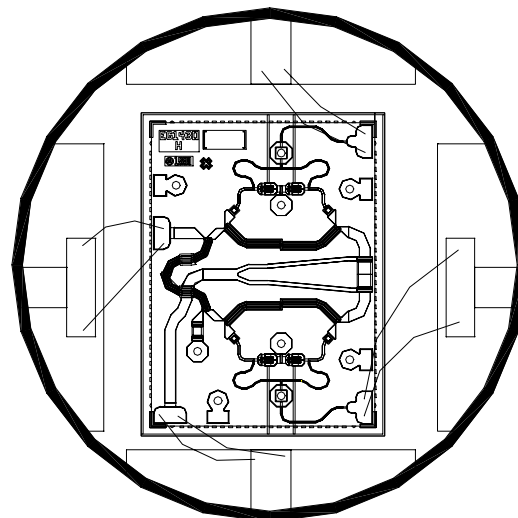
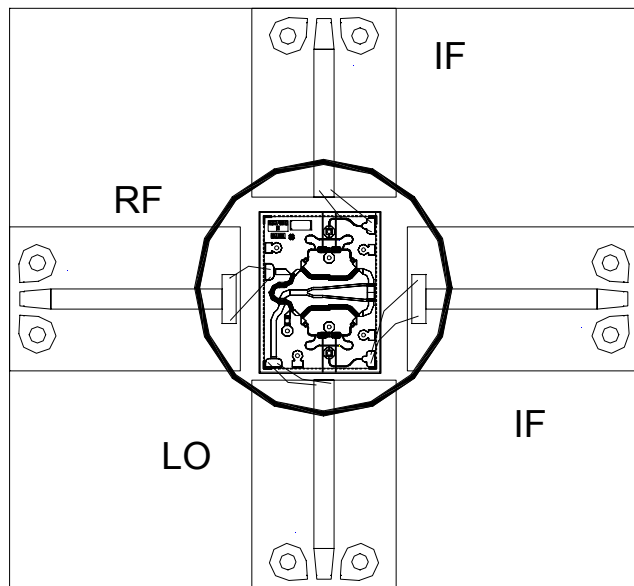


Conversion Gain vs IF Frequency  
(LO Input @ +15dBm)  
In-Phase IF Port



Conversion Gain vs IF Frequency  
(LO Input @ +15dBm)  
Quadrature IF Port

*Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications subject to change without notice*



**TGC1430G - Recommended Assembly Drawing**

*Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications subject to change without notice*

## Assembly Process Notes

Reflow process assembly notes:

- AuSn (80/20) solder with limited exposure to temperatures at or above 300 °C
- alloy station or conveyor furnace with reducing atmosphere
- no fluxes should be utilized
- coefficient of thermal expansion matching is critical for long-term reliability
- storage in dry nitrogen atmosphere

Component placement and adhesive attachment assembly notes:

- vacuum pencils and/or vacuum collets preferred method of pick up
- avoidance of air bridges during placement
- force impact critical during auto placement
- organic attachment can be used in low-power applications
- curing should be done in a convection oven; proper exhaust is a safety concern
- microwave or radiant curing should not be used because of differential heating
- coefficient of thermal expansion matching is critical

Interconnect process assembly notes:

- thermosonic ball bonding is the preferred interconnect technique
- force, time, and ultrasonics are critical parameters
- aluminum wire should not be used
- discrete FET devices with small pad sizes should be bonded with 0.0007-inch wire
- maximum stage temperature: 200 °C

***GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.***

*Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications are subject to change without notice.*

